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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/607,732	06/26/2003	Yoichiro Yamamoto	MTW-001	6511
959	7590	12/30/2004	EXAMINER	
LAHIVE & COCKFIELD, LLP. 28 STATE STREET BOSTON, MA 02109			WILLIAMS, THOMAS J	
			ART UNIT	PAPER NUMBER
			3683	
DATE MAILED: 12/30/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/607,732

Applicant(s)

YAMAMOTO ET AL.

Examiner

Thomas J. Williams

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– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 October 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application:
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3 is/are allowed.
- 6) ☒ Claim(s) 1,4,6-8,10,12 and 13 is/are rejected.
- 7) ☒ Claim(s) 2,5,9 and 11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
    Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
    Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. Acknowledgment is made in the receipt of the amendment filed October 13, 2004.

#### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 10 is rejected under 35 U.S.C. 102(b) as being anticipated by US 3,273,505 to Miles et al.

Miles et al. discloses an electromagnetic actuator comprising: a core 76/78 having an annular groove and a first tapering surface; a coil 66 is accommodated in the groove; an armature 56 is arranged entirely radially outside the core, the armature has a second tapering surface complementary the first tapering surface; an annular restriction member 84 is provided between the outer circumferential surface of the core (note flange portion of 84 disposed on the outer surface of the core) and the inner circumferential surface of the armature, member 84 will prevent radial movement of the armature relative to the core.

4. Claims 12 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by US 4,525,695 to Sheng et al.

Re-claim 12, Sheng et al. discloses an electromagnetic actuator comprising: a core (interpreted as the combination of integral elements 30, 44 and 46) having an annular groove and a first tapering surface; a coil 36 or 42 is accommodated in the groove; an armature 48 is arranged entirely radially inside the core, the armature has a second tapering surface

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complementary the first tapering surface; an annular restriction member 84/92 (see also figures 4-6, note that the cage 92 holding the rolling elements 84 is an annular ring) is provided between the outer circumferential surface of the core and the inner circumferential surface of the armature, the restriction member will prevent radial movement of the armature relative to the core.

Re-claim 13, the core and armature are provided with a third and a fourth tapering surface, respectively.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2,025,098 to Dudick in view of Miles et al.

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Re-claim 1, Dudick teaches an electromagnetic brake, comprising: a multi-plate brake mechanism; the brake is actuated by an electromagnetic actuator having a core (that is ring shaped), a coil and an armature, the armature is connected to a cylindrical pressure plate. However, Dudick fails to teach the electromagnetic actuator as having a ring-like armature member having a second tapering surface complementary a first tapering surface of the core, or a first annular restriction member for preventing radial movement of the armature, wherein the restriction member is located between the outer circumferential surface of the core and the inner circumferential surface of the armature.

Miles et al. teaches an electromagnetic actuator having the above recited features (see also paragraph 3 of this Office action). It would have been obvious to one of ordinary skill in the art when having assembled the brake device of Dudick to have utilized the actuator taught by Miles et al., each actuator is considered functionally equivalent, the choice of which would have been based upon engineering requirements such as performance.

Re-claim 4, Miles et al. teaches an elastic biasing element adjacent an end of the core. However, Miles et al. fails to teach the elastic element between the core and armature. It would have been obvious to one of ordinary skill in the art to have simply rearranged the elastic element to a position between the armature and core, thus reducing the number of parts (such as the spring seating elements) required for supporting the spring outside the core and armature, furthermore the operation of the actuator would have remained unaffected by the rearrangement of the elastic element, see MPEP 2144.04 section VI, subsection C.

8. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dudick in view of Sheng et al.

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Re-claims 6-8, Dudick teaches an electromagnetic brake, comprising: a multi-plate brake mechanism; the brake is actuated by an electromagnetic actuator having a core (that is ring shaped), a coil and an armature, the armature is connected to a cylindrical pressure plate. However, Dudick fails to teach the electromagnetic actuator as having a ring-like armature member having a second tapering surface complementary a first tapering surface of the core, or a first annular restriction member for preventing radial movement of the armature, wherein the restriction member is located between the inner circumferential surface of the core and the outer circumferential surface of the armature.

Sheng et al. teaches an electromagnetic actuator having the above recited features (see also paragraph 4 of this Office action). It would have been obvious to one of ordinary skill in the art when having assembled the brake device of Dudick to have utilized the actuator taught by Sheng et al., each actuator is considered functionally equivalent, the choice of which would have been based upon engineering requirements such as performance. The core and armature are provided with third and fourth tapering surfaces that are complementary with each other.

***Allowable Subject Matter***

9. Claims 2, 5, 9 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. Claim 3 is allowed.

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***Response to Arguments***

11. Applicant's arguments with respect to claims 1-13 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Pieper teaches an actuator having an armature and core with a multiple tapered surfaces and a restriction member 3. Hiyoshi et al. teaches an electromagnetic brake having a core and armature with complementary tapered surfaces.

13. Any inquiries concerning this communication or earlier communications from the examiner should be directed to Thomas Williams whose telephone number is (703) 305-1346. The examiner can normally be reached on Monday-Thursday from 6:30 AM to 4:00 PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Bucci, can be reached at (703) 308-3668. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

TJW

December 22, 2004

THOMAS WILLIAMS  
PATENT EXAMINER

Thomas Williams

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12/22/04